

IN THE CLAIMS:

Claim 1 (currently amended): A process for separating and recovering valuable metals, comprising the steps of:

(a) leaching a raw material containing at least vanadium oxides and molybdenum oxides with ammonia-containing leaching water to obtain a leached solution containing a vanadium compound and a molybdenum compound,

(b) adding ammonium orthomolybdate to the leached solution to deposit separate and recover ammonium metavanadate, ~~the deposited ammonium metavanadate from a first solution for separation, while allowing a first residue solution to remain.~~

(c) adding a water-soluble alcohol to ~~the separated~~ said first residue solution to deposit separate and recover ammonium orthomolybdate, ~~the deposited ammonium orthomolybdate from a second solution for separation, while allowing a second residue solution to remain~~, and

(d) distilling the said second residue solution for separation to separate and recover the water-soluble alcohol, ~~while allowing a third and a residue solution to remain to function as ammonia-containing leaching water~~, wherein

~~at least a portion of the said third residue solution is returned into said step (a) to be added to the ammonia-containing leaching water as a portion thereof, and wherein~~

~~a portion of the recovered ammonium orthomolybdate is returned to said step (b) and a total of [[a]] said recovered, water-soluble alcohol are returned to the system for reusing said step (c).~~

Claim 2 (Original): The process for separating and recovering valuable metals according to claim 1, wherein

the raw material is obtained by roasting a waste catalyst for petroleum desulfurization containing vanadium and molybdenum under an oxidizing atmosphere.

Claim 3 (Original): The process for separating and recovering valuable metals according to claim 1 or 2, wherein

the water-soluble alcohol is ethanol.

Claim 4 (currently amended): The process for separating and recovering valuable metals according to claim 3, comprising:

a first step of leaching a raw material containing at least vanadium oxides and molybdenum oxides with ammonia-containing leaching water to obtain a leached slurry containing ammonium metavanadate and ammonium orthomolybdate;

a second step of distilling the leached slurry to recover the aqueous ammonia and then remove the residue, thereby obtaining a leached solution;

a third step of adding ammonium orthomolybdate to the leached solution to separate deposit and recover the deposited ammonium metavanadate, thereby obtaining a first residue solution for separation;

a fourth step of adding ethanol to the first residue solution for separation to separate and recover the deposited ammonium orthomolybdate to thereby obtain a second residue

solution for separation; and

a fifth step of distilling the second residue solution for separation to separate and recover the ethanol and a third residue solution; wherein

aqueous ammonia recovered in the second step and [[a]] said third residue solution recovered in the fifth step are circulated to the first step as at least a portion of ammonia-containing leaching water; wherein

a portion of ammonium orthomolybdate recovered in the fourth step is circulated to the third step; and wherein

ethanol recovered in the fifth step is circulated to the fourth step; for reusing.

Claim 5 (Original): The process for separating and recovering valuable metals according to claim 4, wherein

the ammonia concentration of ammonia-containing leaching water in the first step is 0.1% by weight or more.

Claim 6 (Previously Presented): The process for separating and recovering valuable metals according to claim 4, wherein

leaching in the first step is carried out in an atmosphere of the presence of oxygen at 50°C or higher.

Claim 7 (Previously Presented): The process for separating and recovering valuable

metals according to claim 4, wherein

the leaching of ammonium metavanadate in the third step is conducted under conditions of the ammonium orthomolybdate concentration being 10% by weight or more based on the weight of the leached solution.

Claim 8 (Previously Presented): The process for separating and recovering valuable metals according to claim 4, wherein

the leaching of ammonium metavanadate in the third step is carried out, with the pH being 7 or more and the temperature being cooled to 50°C or less in the leached solution.